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Project Plan for the Development of the Functional Requirements for Trace Explosive Detection Portal Technology

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Project Plan

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16. Abstract A project plan to develop the functional requirements for Trace Explosive Detection Portal Technology is described. The project will consist of defining the human factors functional requirements for Trace Explosive Detection Portal Technology from various sources. The reports generated from this project will provide information that can be used to develop Trace Explosive Detection Portal Technology before deployment.					
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EXECUTIVE SUMMARY

This Project Plan describes the approach to developing specifications for the Human Factors Functional Requirements for Trace Explosive Portal Detection Systems (TEPDs). TEPDs are new automated trace explosive detection systems requiring standardization for all systems under development. This requirements document will lay the foundation for standardizing specifications, providing guidance to TEPD development.

ACRONYMS

ETD	Explosive Trace Detector
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
MOP	Measure of Performance
PM	Program Manager
QA	Quality Assurance
TEPDS	Trace Explosive Portal Detection System

1. INTRODUCTION

Section 107.20 of the Federal Aviation Regulations (FARs) requires that all persons must be screened prior to having access to the controlled areas of an airport. The purpose of the security checkpoint is to provide the screening of personnel as mandated by this FAR. To comply, contracted security companies have their screeners operate X-ray machines, hand wands, and metal detectors and perform pat-down searches to thwart threats such as guns, knives, and possible bombs from being carried on board an aircraft.

1.1 Background

Portal technology represents a possible candidate for detecting trace amounts of explosive threats on persons passing through the checkpoint [1, 2]. It is based on the fact that once explosives are handled, these substances leave microscopic particles on the hands and clothes. The surfaces subsequently touched by someone with traces of explosives are highly susceptible to being contaminated with these particles. Clothes, suitcase latches, even pocket change may harbor microscopic traces of these substances, which, if detected, can indicate the presence of contraband. Explosives, by their nature, also give off minute amounts of vapor that contain traces of the substances. When they are packaged for handling or transportation, these vapors may be trapped in the packaging and can build up to detectable levels.

Explosive Trace Detectors (ETDs) are currently used to detect explosive traces on carry-on luggage at U.S. airports. ETD technology can be converted to trace portal technology by creating a new system that directly collects samples from the passengers themselves. Billionths of a gram of contraband can be detected by analyzer technology. This technology itself is quite sophisticated, but it is simple to use, accurate, and very sensitive.

1.2 Purpose

The purpose of this project is to define the human factors design requirements for trace explosive detection portal technology. These requirements will provide manufacturers of portal devices with a human factors design rationale for implementation of this technology in the near future. [3]

2. MAJOR PROGRAM ACTIVITIES

2.1 Phase I - Planning and Proposed Strategy

The first phase of the project will involve planning the details of the support for the functional requirements for trace explosive detection portal technology task at the FAA William J. Hughes Technical Center. This phase will lay out the strategy to develop the requirements for trace detection portal technology in detecting potential explosive threats. Protocols and critical issues will be determined.

2.2 Phase II - Define Interim Functional Requirements

Prior to writing the Interim Functional Requirements document, appropriate Measures of Performance will be determined, and a strategy for acquiring the information will be outlined. Requirements identified previously will be included. This document will include a Test Requirements Verification/Traceability Matrix to link all human-centered requirements to demonstration tests and assessments. In addition, any new issues that arise from discussions will be incorporated into the document.

2.3 Phase III - Final Documentation

The finalized Human-Centered Functional Requirements document will include all essential recommendations.

3. PROJECT MANAGEMENT

The Technical Lead is responsible for developing and administering this program. The overall responsibility for the quality of all projects and the timely completion of these projects under the program are the Technical Leads responsibility.

3.1 Project Planning and Monitoring

This project plan forms the baseline for planning and monitoring the progress and status of the project. During the course of the project, bi-weekly activity reports will be reviewed at the regularly scheduled security meetings. A monthly Earned Value Analysis will also be generated. Any risk associated with the on-time/on-budget completion of the project will be reported and resolved at the time it arises. Periodic reviews of the plan and its progress will be conducted and any necessary changes will be implemented.

3.2 Deliverables

Table 1 shows the contractual deliverable documents for this project.

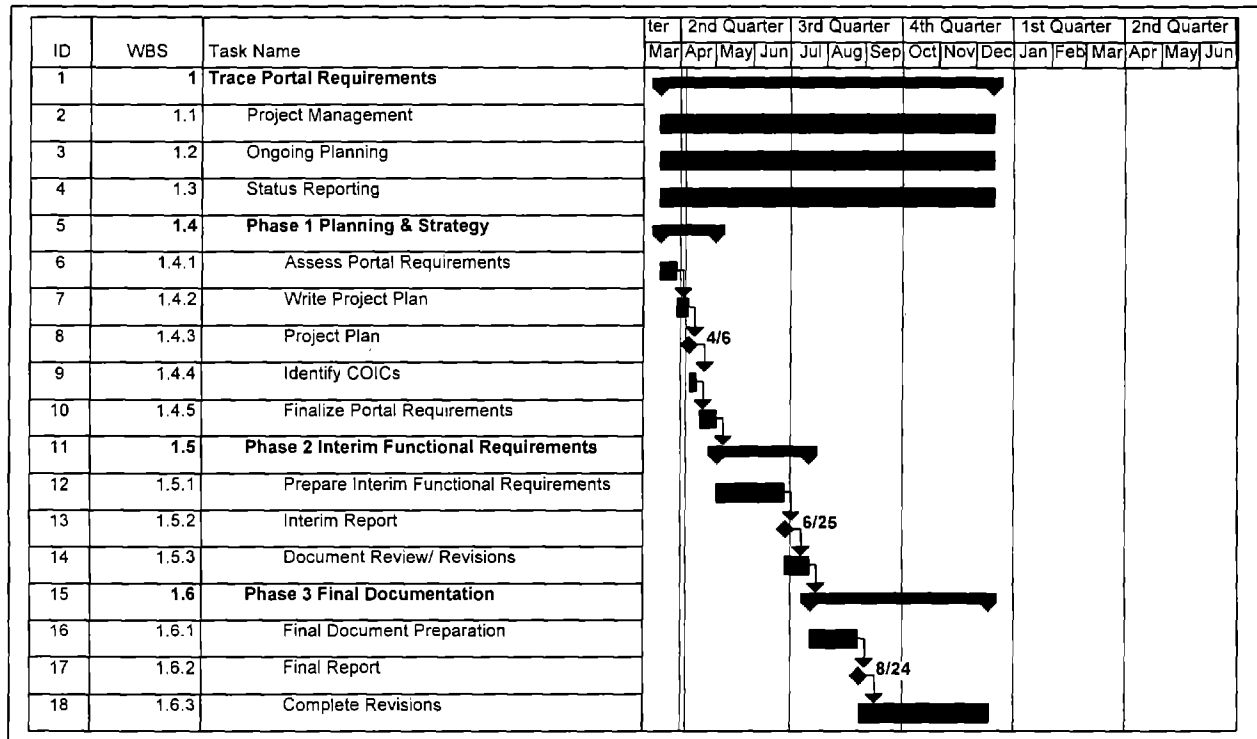
TABLE 1. PROJECT DELIVERABLES

Deliverable	Delivery Date
Project Plan	April 6, 2001
Interim Functional Requirements Report	June 25, 2001
Final Report	August 24, 2001

3.3 Schedule

The project schedule is depicted in Table 2. It defines the Work Breakdown Structure, which specifies the tasks that will be performed and the expected completion date for each task.

TABLE 2. GANTT CHART PROJECT SCHEDULE



3.4 Quality Assurance

Quality Assurance (QA) requires that each program maintain a QA plan tailored for that program.

The QA activities envisioned for this project include the following:

- a. Formal/Informal Reviews – formal and informal reviews will be conducted to evaluate progress towards completion of the current phase and/or assess readiness for the formal reviews. Bi-weekly activity reports will be reviewed by the Technical Lead for this project to ensure that quality standards are being maintained. At the completion of each phase of the project, the Technical Lead will conduct an audit to ensure quality of the products prior to beginning the next phase.
- b. Evaluation/Inspections – evaluation and inspections will be conducted periodically to assess conformance to this project plan and contract requirements.
- c. QA Reporting – status reports on the QA Plan for this project will be contained in the Project Monthly Status Report. It will include QA activities performed for the reporting period, the results of these activities, the problems identified and corrected or action items assigned, the status of previous action items, and plans for the next reporting period.
- d. Final Delivery Certification – prior to delivery of the Final Report, the Technical Lead will ensure that the products meet their original requirements and that the Final Report accurately describes what was performed in each project phase and the results of these activities.
- e. Internal Review - following the incorporation of the human factors program comments, the deliverables will be circulated to the branch manager, headquarters FAA sponsors, and other government groups for comment.
- f. Final Revision Process – a 6-month review and comment period will be implemented into the lifecycle of the project. This will cover the time for FAA sponsors as well as the Technical Lead to incorporate any changes required.

4. REFERENCES

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3. Wagner, D., Birt, J.A., Snyder, M., & Duncanson, J.P., "Human Factors Design Guide," (DOT/FAA/CT-96/1). DOT/FAA William J. Hughes Technical Center, Atlantic City International Airport, NJ, 1996.